

A Summary of Research Projects
with the
Agricultural Experiment Station
FY 1982



Agricultural Experiment Station
University of Alaska
Fairbanks, Alaska 99701

James V. Drew, Director

AGRICULTURAL RESEARCH

UNIVERSITY OF ALASKA, FAIRBANKS
UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

A Summary of Research with the Agricultural Experiment Station, FY 1982

Fairbanks Research Center
Palmer Research Center
Homer Research Center

July 1, 1982

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INTRODUCTION

The purpose of this report is to list the objectives of research projects at the Alaska Agricultural Experiment Station for the 1982 fiscal year (from July 1, 1981 to June 30, 1982). In addition, the report summarizes the budgets of these projects in terms of the sources and distribution of funds, expenditures by major functions, state goals, national goals, and national research problem areas.

The financial data given in this report represent the amounts expended for individual projects. In general, the financial data presented are based on the University's accounting system. The dollar amounts, should not be taken as an official accounting, but rather as an index of the distribution of funds by research areas. The scientist years (SYs) are estimates of time committed by the professional staff for all projects and include SYs reported in the CRIS system.

This research summary was compiled by Susan C. Trant.

INDEX OF STAFF AND DISCIPLINES, FY 1982

Administration	Project Pages(s)
J.V. Drew, Ph.D.	Director. 65, 73, 82
S.H. Restad, M.S.	Assistant Director. 65, 66, 67, 74
C.W. Hartman	Executive Officer 65
M.S. Murray	Editor. 68
*L.J. Klebesadel, Ph.D.	AR/SEA Research Leader
R.L. Taylor*, M.S.	AR/SEA Location Leader. 68
Research Staff:	
L.D. Allen, M.S.	Associate Professor, Agricultural Engineering . 18, 44, 80
A.L. Brundage, Ph.D.	Professor, Animal Science 39, 40, 41, 43, 79
D.E. Carling, Ph.D.	Assistant Professor, Horticulture 35
W.B. Collins, Ph.D.	Assistant Professor, Range Management 27
*J.S. Conn, Ph.D.	Weed Scientist. 31
**R.A. Dieterich, Ph.D.	Professor, Veterinary Science 31
D.H. Dinkel, Ph.D.	Professor, Plant Physiology 34, 35, 36, 61
J.V. Drew, Ph.D.	Professor, Agronomy 17, 56
J.D. Fox, Ph.D.	Assistant Professor, Resource Management. . . 18
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A. Juhenville, Ph.D.	Associate Professor, Resource Management. . . 58, 59
G.P. Juday, Ph.D.	Visiting Associate Professor. 80
*L.J. Klebesadel, Ph.D.	Research Agronomist 25
C.W. Knight, M.S.	Instructor, Agronomy. 38, 57, 79
*W.M. Laughlin, Ph.D.	Research Soil Scientist 15
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**J.R. Luick, Ph.D.	Professor, Nutrition. 44
J.H. McBeath, Ph.D.	Assistant Professor, Plant Pathology. 30, 57, 81
J.D. McKendrick, Ph.D.	Associate Professor, Agronomy 19, 20, 26, 27, 60
G.A. Mitchell Jr., Ph.D.	Assistant Professor, Agronomy 14, 79
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B.J. Neiland, Ph.D.	Professor, Botany 30, 57, 58, 60, 80, 81
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S.D. Sparrow, Ph.D.	Assistant Professor, Agronomy 15, 16
*R.L. Taylor, M.S.	Research Agronomist 25, 37, 39, 68
W.C. Thomas, Ph.D.	Professor, Economics. 17, 82
K. Van Cleve, Ph.D.	Professor, Forestry (Soils) 19, 20, 21, 22, 23, 24
R.B. Weeden, Ph.D.	Professor of Resource Management and Wildlife .
F.J. Wooding, Ph.D.	Professor, Agronomy 36, 37
W.G. Workman, Ph.D.	Associate Professor, Economics. 16, 58
J. Yarie, Ph.D.	Research Associate, Forest Soils. 21, 22, 23

*Agricultural Research, Science and Education Administration, USDA Cooperating
 **Institute of Arctic Biology

SOURCE AND DISTRIBUTION OF FUNDS, FY 1982

<u>Funding Source</u>	<u>Salary*</u>	<u>Other**</u>	<u>Salary Plus Other</u>	<u>Percent of Total</u>
State	\$1,873,743	\$ 981,812	\$2,855,555	47.5
Hatch	386,011	134,884	520,895	8.7
Hatch Regional	85,191	35,398	120,589	2.0
McIntire-Stennis	131,340	39,910	171,250	2.8
AR/SEA	261,905	62,720	324,625	5.4
Coop Agreement	179,709	23,866	203,575	3.4
Grants & Contracts	957,462	859,235	1,816,697	30.2
TOTAL	\$3,875,361	\$2,137,825	\$6,013,826	100.0

*Does not include benefits.

**Personnel benefits, travel, supplies, equipment, contractual services, postage and freight.

GRANTS AND CONTRACTS BY SOURCE AND AMOUNT, FY 1982

State of Alaska:

Alaska Council on Science and Technology	\$ 25,059
Department of Natural Resources	18,057
CETA	15,578
Office of the Governor	256,035
Department of Commerce and Economic Development	4,760
Department of Health and Social Services	63,978

Federal:

Soil Conservation Service	735
Forest Service	499,596
Sea Grant	85,561
National Science Foundation	37,765
CR, SEA Special Grants	273,600
Department of Energy	69,324
Department of the Navy	74,051

Other:

Terrestrial Environmental Specialists, Inc.	328,616
Alaska Commercial Fishing and Agricultural Bank	7,768
Alaska Management and Planning	7,115
Union Carbide Corporation	42,150
Alaska Humanities Forum	3,887
Northern Development Corporation	3,062

TOTAL	\$1,816,697
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SUMMARY OF EXPENDITURE BY MAJOR FUNCTION, FY 1982

Function	Salary	Other	Salary Plus Other	Percent of Total
Research Projects	\$2,669,862	\$1,378,174	\$4,048,036	67.3
Administration	562,637	246,484	809,121	13.5
Maintenance	465,791	446,589	912,380	15.2
Public Service Projects	177,071	66,578	243,649	4.0
TOTAL	\$3,875,361	\$2,137,825	\$6,013,186	100.0

RESEARCH PROJECTS

SUMMARY OF RESEARCH PROJECT EXPENDITURES
BY SOURCE AND AMOUNT, FY 1982

<u>Funding Sources</u>	<u>Salary</u>	<u>Other</u>	<u>Salary Plus Other</u>	<u>Percentage of Total</u>
State	\$1,120,157	\$ 422,281	\$1,542,438	38.2
Hatch	323,364	107,229	430,593	10.6
Hatch Regional	85,191	24,666	109,857	2.7
Federal	220,225	53,200	273,425	6.8
Coop Agreement	162,909	23,866	186,775	4.6
McIntire-Stennis	131,340	39,910	171,250	4.2
Grants & Contracts	626,676	707,022	1,333,698	32.9
TOTAL	\$2,669,862	\$1,378,174	\$4,048,036	100.0

DISTRIBUTION OF RESEARCH PROJECT EXPENDITURES
BY STATE GOALS, FY 1982

	Amount	%
Goal 1: Increase the efficiency of production systems for food and wood products, including energy conservation and the development of new lands	\$2,639,616	65.2
Goal 2: Improve processing, transportation and marketing of food and wood products in Alaska for markets in Alaska and for export	20,568	0.5
Goal 3: Improve resource inventories and develop land-use planning for agriculture and forestry that will enhance environmental quality	809,102	20.0
Goal 4: Develop resource management for improving the quality of life, including revegetation procedures, landscaping and home gardening, and outdoor recreation	578,750	14.3
TOTAL	\$4,048,036	100.0

DISTRIBUTION OF RESEARCH PROJECT EXPENDITURES
BY NATIONAL GOALS, FY 1982

	Amount	%
Goal I: Insure a stable and productive agriculture for the future through wise management of natural resources		
TOTAL	\$1,646,899	40.7
RPA* 101 Appraisal of Soil Resources	735	
RPA 102 Soil, Plant, Water Nutrient Relationship	230,053	
RPA 104 Alternative Uses of Land	445,695	
RPA 107 Watershed Protection and Management	12,400	
RPA 109 Adaptation to Weather and Weather Modification	74,315	
RPA 110 Appraisal of Forest and Range Resources	36,088	
RPA 111 Biology, Culture and Management of Forests and Timber-Related Crops	409,061	
RPA 112 Improvement of Range Resources	410,887	
RPA 113 Remote Sensing	27,665	
Goal II: Protect forests, crops and livestock from insects, diseases and other hazards		
TOTAL	\$ 149,602	3.7
RPA 201 Control of Insects Affecting Forests	13,198	
RPA 208 Control of Diseases and Nematodes of Field Crops and Range	88,452	
RPA 209 Control of Weeds and Other Hazards of Field Crops and Range	41,400	
RPA 211 Control of Diseases of Livestock Poultry and Other Animals	6,552	
Goal III: Produce an adequate supply of farm and forest products at decreasing real production costs		
TOTAL	\$1,503,760	37.1
RPA 303 Economics of Timber Production	6,971	
RPA 304 Improvement of Biological Efficiency of Fruit and Vegetable Crops	219,660	
RPA 305 Mechanization of Fruit and Vegetable Crop Production	65,240	
RPA 307 Improvements of Biological Efficiency of Field Crops	238,704	
RPA 309 Production Management Systems for Field Crops	92,818	
RPA 311 Improvement of Biological Efficiency in Production of Livestock, Poultry and Other Animals	601,375	
RPA 313 Production Management Systems for Livestock, Poultry and Other Animals	218,718	
RPA 315 Improvement of Structure, Facilities and General Purpose Farm Supplies and Equipment	60,274	

*USDA National Research Problem Areas

		Amount	%
Goal IV:	Expand the demand for farm and forest products by developing new and improved products and processes and enhancing product quality	0	0
Goal V:	Improve efficiency in the marketing system		
	TOTAL	\$ 35,125	0.9
	RPA* 503 Efficiency in Marketing Agricultural Products and Production Inputs	20,568	
	RPA 511 Improvement in Agricultural Statistics	14,557	
Goal VI:	Expand export markets and assist developing nations	0	0
Goal VII:	Protect consumer health and improve nutrition and well being of the American people	0	0
Goal VIII:	Assist rural Americans to improve their level of living		
	TOTAL	7,115	0.2
	RPA 804 Improvement of Economic Potential of Rural People	7,115	
Goal IX:	Promote community improvement including development of beauty, recreation, environment, economic opportunity, and public service		
	TOTAL	\$ 705,535	17.4
	RPA 901 Alleviation of Soil, Water and Air Pollution and Disposal of Wastes	302,180	
	RPA 902 Outdoor Recreation	102,705	
	RPA 903 Multiple Use Potential of Forest Land and Evaluation of Forestry Programs	282,136	
	RPA 905 Trees to Enhance Rural and Urban Environment	7,422	
	RPA 906 Culture and Protection of Ornamentals and Turf	11,092	
	TOTAL - All Goals	\$4,048,036	100.0

*USDA National Research Problem Areas

NATIONAL GOAL I: FUNDING SOURCES

Insure a stable and productive agriculture for the future through wise management of Natural Resources.

Funding Sources	Salary	Other	Salary Plus Other	Percentage of Total
State	\$428,066	\$146,275	\$574,341	34.9
Hatch	69,413	22,640	92,053	5.6
Hatch Regional	14,526	4,337	18,863	1.1
McIntire-Stennis	116,360	36,764	153,124	9.3
Federal	139,325	38,000	177,325	10.8
Coop Agreement	97,809	23,866	121,675	7.4
Grants & Contracts	214,310	295,208	509,518	30.9
TOTAL	\$1,079,809	\$567,090	\$1,646,899	100.0

NATIONAL GOAL I: RESEARCH PROJECTS

Title: Cooperative Soil-Range Surveys on the Seward Peninsula.
 Acct. No.: 33236-230561
 National Goal: I, RPA:101
 State Goal: 3 Termination: 3/31/83
 SYS 0.0
 Principal Investigator: S. Restad (P. Scorup)

Objectives: This is a cooperative project with the Soil Conservation Service, and the State Department of Natural Resources, Division of Agriculture with a primary objective to complete soil and range surveys for all reindeer grazing allotments on the Seward Peninsula. Landsat imagery, computer data, and color infrared photographs are being utilized to obtain range composition and yield data, develop range site descriptions, and produce maps. Data from this project will ultimately be used to develop comprehensive range management plans for the reindeer industry and serve multi-resource planning and development interests in northwest Alaska.

Funding Source:	Salary	Other	Total
U.S. Soil Conservation Service	\$450	\$285	\$735

Title: Fertility Evaluation and Improvement of Alaskan Soils.
 Acct. No.: 33336-150040, 36226-230691
 National Goal: I, RPA:102
 State Goal: I Termination: 9/30/86
 SYS 0.4
 Principal Investigator: G. Mitchell

Objectives: This project is to develop and correlate soil nutrients with plant responses for Alaskan conditions; to survey the fertility status of remote Alaskan soils as an aid in evaluating their agricultural potential; and to relate (for specific soil types) appropriate composition and quantities of required fertilizer.

Funding Sources:	Salary	Other	Total
State	\$10,833	\$ 3,585	\$14,418
Hatch	15,891	8,893	24,784
Total	\$26,724	\$12,478	\$39,202

Title: Determination of Soil Amendments for Optimum Crop Production on Agricultural Soils in Alaska.

Acct. No.: FR/SEA WRU 5618-20780,33322-230450

National Goal: I, RPA:102

State Goal: 1 Termination: 1985
Sys 0.0

Principal Investigator: W. Laughlin

Objectives: This project is to develop optimum soil management practices for production of forages, oil seeds and small grains; and to determine nitrogen mineralization rates and phosphorus release rates in cold soils.

Funding Source:	Salary	Other	Total
Federal	\$ 78,225	\$10,000	\$ 88,225
Coop Agreement	21,925	5,350	27,275
Total	\$100,150	\$15,350	\$115,500

Title: Fate of Fertilizer Nitrogen in Agricultural Soils in Interior Alaska.

Acct. No.: 33216-254060

National Goal: I, RPA:102

State Goal: 1 Termination: 12/31/84
Sys 0.0

Principal Investigator: S. Sparrow

Objectives: This project is to gain a better understanding of the behavior of fertilizer nitrogen in agricultural soils in Interior Alaska.

Funding Source:	Salary	Other	Total
Alaska Council on Science & Technology	\$5,111	\$19,948	\$25,059

Title: Crop Ecology: Soil Nitrogen Relationships.

Acct. No.: 33372-150040

National Goal: I, RPA:102

SYs 0.8

State Goal: 1

Principal Investigator: S. Sparrow

Objectives: This project is to obtain Rhizobium meliloti strains which are highly effective in terms of modulation and N₂ fixation with alfalfa under soil and climatic conditions in Alaska and to measure amounts of N₂ fixed by these strains under Alaskan field conditions.²

Funding Source:	Salary	Other	Total
State	\$39,773	\$10,519	\$50,292

Title: Private Land Use in Alaska.

Acct. No.: 33354-150040

National Goal: I, RPA:104

State Goal: 3

SYs 0.2

Principal Investigator: W. Workman

Objectives This research is to examine the efficiency and equity implications of various institutions affecting private land use in Alaska.

Funding Source:	Salary	Other	Total
State	\$12,938	\$3,968	\$16,906

Title: Economics of Agricultural Development.

Acct. No.: 33371-150040

National Goal: I, RPA:104

State Goal: 1

SYs 0.8

Principal Investigator: W. Thomas

Objectives: To investigate the economics of agricultural development with special reference to agricultural policy.

Funding Source:

	State	Other	Total
State	\$56,818	\$15,271	\$72,089

Title: Study of Land Ownership Patterns in the Chugach Region.

Acct.No.: 33216-230750

National Goal: I, RPA:104

State Goal: 3

Termination: 12/12/81
SYs 1.8

Principal Investigator: J. Drew

Objectives: This research is to study the land ownership patterns in the Chugach region according to the intent of Sections 1429 and 1430 of the Alaska National Interest Lands Conservation Act (Public Law 96-487) dated December 2, 1980.

Funding Source:

	Salary	Other	Total
U.S. Forest Service	\$133,446	\$223,254	\$356,700

Title: Water Balance Procedures for a Boreal Forest Watershed.

Acct.No.: 36217-230701

National Goal: I, RPA:107

State Goal: 4 Termination: 7/30/84
SYs 0.0

Principal Investigator: J. Fox

Objectives: This project is to establish, test, and/or improve water balance procedures for small, boreal forest watersheds. Precipitation at five stations in Spinach Creek watershed will be monitored. Solar radiation, temperature and relative humidity will be monitored at one location, vegetation surveys will be continued, and a stream gaging station will be operated on Spinach Creek. A Parshall flume will be installed.

Funding Source:	Salary	Other	Total
McIntire-Stennis	\$5,383	\$7,017	\$12,400

Title: Environmental Conditions Affecting Crop Growth in Alaska.

Acct. No.: 33308-150040, 36220-230691
36231-230681 (NC-94)

National Goal: I, RPA:109

State Goal: 3 Termination: 9/30/84
SYs 0.6

Principal Investigator: L. Allen

Objectives: This project is to relate observed weather parameters to plant development, yield and quality; to define mathematical models for predicting development, yield and quality; and to evaluate methods of improving the plant micro-environment.

Funding Sources:	Salary	Other	Total
State	\$23,167	\$ 8,960	\$32,127
Hatch	18,766	4,559	23,325
Hatch Regional	14,526	4,337	18,863
Total	56,459	17,856	74,315

Title: Documentation and Description of Alaska Vegetation Types.

Acct.No.: 33292-230650

National Goal: I, RPA:110

State Goal: 3 Termination: 10/1/81
SYs 0.0

Principal Investigator: K. Van Cleve

Objectives: This research is to develop a data storage and retrieval system for vegetation data for Alaskan vegetation types; and to utilize this information to develop vegetation descriptions and site information for selected Alaskan vegetation types.

Funding Source:	Salary	Other	Total
U.S. Forest Service	\$295	\$93	\$388

Title: Range Types and Productivity for Ungulates in Portions of the Cook Inlet Basin, Alaska.

Acct.No.: 36502-230700

National Goal: I, RPA:110

State Goal: 3 Termination: 10/10/81
SYs 0.0

Principal Investigator: J. McKendrick

Objectives: Ungulate range types in the boreal forest and alpine zones in a section of Cook Inlet Basin, Alaska, will be measured to provide a basis for calculating a range resource inventory.

Funding Source:	Salary	Other	Total
McIntire-Stennis	\$1,936	\$752	\$2,688

Title: Range Resource Appraisal for Improved Management.

Acct.No.: 33249-150040

National Goal: I, RPA:110

State Goal: 3

SYS 0.3

Principal Investigator: J. McKendrick

Objectives: This project is designed to acquire data on the production and carrying capacity of the major range types in southcentral Alaska. Changes in seasonal forage quality and changes in animal forage preferences as well as animal performances will be determined.

Funding Source:	Salary	Other	Total
State	\$24,628	\$8,384	\$33,012

Title: Preliminary Site Productivity Determination for Black Cottonwood and Balsam Poplar in Interior Alaska.

Acct.No.: 33292-230580

National Goal: I, RPA:111

State Goal: 1 Termination: 12/31/82
SYS 0.0

Principal Investigator: K. Van Cleve

Objectives: Cottonwood is rapid growing in interior Alaska. At this time, no information is available on growth and yield for this species. Development of productivity information in the form of growth and yield tables will greatly expand our understanding of forest growth in general and provide critical information for this tree species.

Funding Source:	Salary	Other	Total
U.S. Forest Service	\$3,413	\$1,435	\$4,848

Title: Soil Nitrogen Supply in Relation to Forest Productivity and Successional Patterns in Interior Alaska.

Acct. No.: 36241-230701

National Goal: I, RPA:111

State Goal: 1 Termination: 11/4/86
Sys 0.2

Principal Investigator: K. Van Cleve

Objectives: This project is to evaluate the control of soil temperature and moisture on the supply of soil nitrogen for tree growth in the principal forest types of interior Alaska.

Funding Source:	Salary	Other	Total
Mc-Intire-Stennis	\$109,041	\$28,995	\$138,036

Title: Site Quality Comparison for Tanana River Balsam Poplar and Susitna River Black Cottonwood.

Acct. No.: 33292-230740

National Goal: I, RPA:111

State Goal: 1 Termination: 9/30/81
Sys 0.0

Principal Investigator: J. Yarie

Objectives: Growth and yield tables will be developed from a small sample of cottonwood and balsam poplar. Understory and soil physical and chemical variables will be correlated to growth and compared between and within each major river drainage.

Funding Source:	Salary	Other	Total
U.S. Forest Service	\$3,932	\$2,734	\$6,666

Title: Wood for Energy in the Taiga - Evaluation of Potential Species and Their Growth Rates.

Acct.No.: 33292-243310

National Goal: I, RPA:111

State Goal: 1 Termination: 8/31/82
SYS 0.3

Principal Investigator: J. Yarie

Objectives: The primary goal of this project is to provide short rotation intensive silvicultural prescription for hardwoods on a site specific basis for interior Alaska. The initial phases of this project deal with species selection and herbivory.

Funding Source:	Salary	Other	Total
Union Carbide Corp.	\$21,155	\$20,995	\$42,150

Title: Forest Floor Organic Matter Quality as a Control of Nitrogen and Phosphorus Supply to Forest Plants in the Alaska Taiga.

Acct. No.: 33292-245710

National Goal: I, RPA:111

State Goal: 1 Termination: 5/31/83
SYS 0.3

Principal Investigator: K. Van Cleve

Objectives: Using a bioassay, establish the flow of nitrogen and phosphorus from organic matter into the plant as a function of organic matter quality for the range of chemical qualities encountered in forest floors in interior Alaska.

Funding Source:	Salary	Other	Total
National Science Foundation	\$22,362	\$15,403	\$37,765

Title: Effects of Commercial Timber Harvesting upon Microbial Respiration and Nitrogen Leaching Losses in White Spruce Forest Soils in Interior Alaska.

Acct.No.: 33292-230800

National Goal: I, RPA:111

State Goal: 4 Termination: 9/1/82
SYs 0.0

Principal Investigator: K. Van Cleve

Objectives: Soil solution samplers will be used to estimate available-N leachate losses from mature white spruce stands and associated clearcuts. Estimates of soil respiration from the same areas will be determined using CO₂ absorption by soda-lime. Leachate-loss will supplement concurrent studies on other portions of the nitrogen cycle on these sites; respiration will be used in conjunction with other environmental data in a variety of process models.

Funding Source:	Salary	Other	Total
U.S. Forest Service	\$3,018	-0-	\$3,018

Title: Biomass Equations for Non-Timber Vegetation, Oriented to Five Interior Alaska Plant Communities.

Acct.No.: 33292-230810

National Goal: I, RPA:111

State Goal: 4 Termination: 6/30/83
SYs 0.3

Principal Investigator: J. Yarie

Objectives: This project is to determine the appropriate twig and foliage biomass equations for understory vegetation in five forested plant communities.

Funding Source:	Salary	Other	Total
U.S. Forest Service	\$15,414	\$9,295	\$24,709

Title: Environmental Chemistry Characteristics of Taiga Settings.

Acct.No.: 33292-230820

National Goal: I, RPA:111

State Goal: 4

Termination: 9/30/82
SYS 0.0

Principal Investigator: K. Van Cleve

Objectives: This project is to perform and report chemical land nutrient analysis of selected stream, lake, and terrain samples (water, terrestrial, and aquatic vegetation, soils) from taiga environments.

Funding Source:	Salary	Other	Total
U.S. Forest Service	\$5,714	\$1,766	\$7,480

Title: Forest Soil Research Support Lab.

Acct.No.: 33292-150040

National Goal: I, RPA:111

State Goal: 1

SYS 0.4

Principal Investigator: K. Van Cleve

Objectives: This work provides support for research on relationships between forest types within framework of nutrient cycling.

Funding Source:	Salary	Other	Total
State	\$108,302	\$36,087	\$144,389

Title: Breeding and Production - Forage Crops for Hay, Pasture, and Other Uses Including Turf.

Acct.No.: AR/SEA WRU 5618-20100, 33321-230450

National Goal: I, RPA:112

State Goal: 1 Termination: 1984
SYS 0.0

Principal Investigators: L. Klebesadel and R. Taylor

Objectives: This project is to develop better adapted, improved varieties of grasses and legumes for forage; and to devise optimum management techniques for maximum production, quality, and persistence of livestock forage in Alaska.

Funding Sources:	Salary	Other	Total
Federal	\$ 61,100	\$28,000	\$ 89,100
Coop Agreement	75,884	18,516	94,400
Total	\$136,984	\$46,516	\$183,500

Title: Development and Application of Plant Materials for Forage, Pasture, Turf, and Conservation Uses.

Acct.No.: 33306-150040, 36223-230691

National Goal: I, RPA:112

State Goal: 4 Termination: 3/31/87
SYS 0.7

Principal Investigator: W. Mitchell

Objectives: This research is to select superior performing grasses within native species and compare with standard forage grasses in different agricultural regions of the state; to determine response of selections and standards to range of fertilizer treatments and determine forage quality as related to different conditions; to determine applicability of forage and grazing entries for supplemental pasture; to select superior performing grasses for conservation uses in different regions of the state; to select superior performing grasses for turf purposes; and to expand upon knowledge base for additional exploratory and collection efforts.

Funding Sources:	Salary	Other	Total
State	\$53,220	\$10,580	\$ 63,800
Hatch	34,756	9,188	43,944
Total	\$87,976	\$19,768	\$107,744

Title: Research on Red Meat - Agronomy/Homer.

Acct. No.: 33261-150040

National Goal: I, RPA:112

State Goal: 1

SYs 0.2

Principal Investigator: W. Mitchell

Objectives: This research is to study the management of native bluejoint hayland; compare performance of experimental perennials with standard varieties to provide improved species for forage production and grazing; and test use of annuals for forage production.

Funding Source:	Salary	Other	Total
State	\$33,258	\$8,269	\$41,527

Title: Research on Red Meat - Range/Homer.

Acct. No.: 33259-150040

National Goal: I, RPA:112

State Goal: 1

SYs 0.2

Principal Investigator: J. McKendrick

Objectives: This research is to investigate range-carrying capacities and effects of grazing intensities by cattle on range conditions and trends in the Homer vicinity.

Funding Source:	Salary	Other	Total
State	\$20,737	\$6,951	\$27,688

Title: Bison Diet Study.

Acct.No.: 33389-150040

National Goal: I, RPA:112

State Goal: 1

SYs 0.0

Principal Investigator: J. McKendrick

Objectives: This project is aimed at identifying plant species that are important in the natural diet of the Delta bison herd. The various range types used by the bison will be identified and the seasonal change in the forage quality of those plants will be measured.

Funding Source:	Salary	Other	Total
State	\$4,558	\$3,682	\$8,240

Title: Applied Reindeer Research - Range Management.

Acct. No.: 33399-150040

National Goal: I, RPA:112

State Goal: 1

SYs 0.3

Principal Investigator: W. Collins

Objectives: This project is to help develop range management on the Seward Peninsula so that the forage resource is maintained as the reindeer industry grows to its full potential. Primary objectives are 1) to determine the forage production capabilities of the different range sites, and 2) to determine the ecological responses of those plant communities to grazing pressures, seasons of use, frequency of use, and fire.

Funding Source:	Salary	Other	Total
State	\$18,366	\$23,822	\$42,188

Title: Resource Mapping.

Acct. No.: 33392-150040

National Goal: I, RPA:113

State Goal: 3

SYs 0.0

Principal Investigator: S. Restad (P. Scorup)

Objectives: Landsat imagery, computer colored products and color infrared aerial photographs are being interpreted and correlated with range yield data to produce range site maps on the Seward Peninsula. These maps will be used to help develop comprehensive range management plans for the reindeer industry and serve multi-resource planning and development interests in northwest Alaska.

Funding Source:	Salary	Other	Total
State	\$21,468	\$6,197	\$27,665

NATIONAL GOAL II: FUNDING SOURCES

Protect forests, crops and livestock from insects, diseases and other hazards.

Funding Sources	Salary	Other	Salary Plus Other	Percentage of Total
State	\$ 69,592	\$18,860	\$ 88,452	59.1
Federal	35,400	6,000	41,400	27.7
Grants & Contracts	15,267	4,483	19,750	13.2
TOTAL	\$120,259	\$29,343	\$149,602	100.0

NATIONAL GOAL II: RESEARCH PROJECTS

Title: Rate of Woodborer Infestation and Development and Impact on Wood Quality in Recently Felled White Spruce Trees and Logging Slash.

Acct. No.: 33216-230630

National Goal: II, RPA:201

State Goal: 1 Termination: 12/31/82
SYs 0.0

Principal Investigator: B. Neiland

Objectives: This research is to determine time and rate of infestation of felled and damaged standing trees by woodborers following harvest; determine life cycle for woodborer species found; and determine the impact of woodborer damage, including inoculation of fungi, on quality of lumber produced from infested trees. Literature search was made during winter 1980-81; sampling system was developed and field tested. At weekly intervals, the sample unit of trees was investigated for borer infestation; at intervals determined by life stage, borer larvae were collected and development recorded. Fungal inoculations were made on some damaged trees to follow rates of infection.

Funding Source	Salary	Other	Total
U.S. Forest Service	\$10,042	\$3,156	\$13,198

Title: Integrated Pest Management to Control Crop Diseases in Alaska.

Acct. No.: 33386-150040

National Goal: II, RPA:208

State Goal: 1 SYs 0.8

Principal Investigator: J. McBeath

Objectives: This project is to 1) identify the important diseases on crops in Alaska, 2) study and understand these pathogens, and 3) to investigate the means by which crops might be protected against these plant pathogens.

Funding Source:	Salary	Other	Total
State	\$69,592	\$18,860	\$88,452

Title: Weed Control Technology for Protecting Crops, Grazing Lands, Aquatic Sites, and Noncropland.

Acct. No.: AR/SEA WRU 5618-20280

National Goal: II, RPA:209

State Goal: 1 Termination: 1985
SYs 1.0

Principal Investigator: J. Conn

Objectives: This project is (1) to determine the vulnerability of weeds to different control practices, (2) the effects and fate of chemical weed control practices on crops and soils, and (3) integrated weed management systems to reduce tillage and erosion.

Funding Source:	Salary	Other	Total
Federal	\$35,400	\$6,000	\$41,400

Title: Vaccine Testing - Serology FY 82.

Acct. No.: 33411-230732

National Goal: II, RPA:211

State Goal: 1 Termination: 9/30/82
SYs 0.0

Principal Investigator: R. Dieterich

Objectives: Brucellosis in Alaskan reindeer remains one of the major problems faced by the industry. Four vaccines have been tested during the last five years and current results are encouraging that a killed vaccine made from the actual organism (Brucella suis type 4) which causes the disease in reindeer will be effective. This vaccine is in its second year of testing. Pending approval, this product will be tested further in the field to judge its effectiveness under actual conditions. This vaccine testing involves measuring the response of experimentally vaccinated reindeer to infection and documenting their serologic response to both vaccination and infection.

Funding Source:	Salary	Other	Total
USDA - Science & Education Administration	\$5,225	\$1,327	\$6,552

NATIONAL GOAL III: FUNDING SOURCES

Produce an adequate supply of farm and forest products at decreasing real production costs.

<u>Funding Sources</u>	<u>Salary</u>	<u>Other</u>	<u>Salary Plus Other</u>	<u>Percentage of Total</u>
State	\$ 573,788	\$246,025	\$ 819,813	54.6
Hatch	253,951	84,589	338,540	22.5
Hatch Regional	53,876	12,565	66,441	4.4
Federal	45,500	9,200	54,700	3.6
Coop Agreements	65,100	-0-	65,100	4.3
Grants & Contracts	84,615	74,551	159,166	10.6
TOTAL	\$1,076,830	\$426,930	\$1,503,760	100.0

NATIONAL GOAL III: RESEARCH PROJECTS

Title: Timber Harvest Production Rates and Cost in Interior Alaska.

Acct. No.: 33216-230840

National Goal: III, RPA:303

State Goal: 1 Termination: 9/30/83
SYs 0.0

Principal Investigator: A. Gasbarro

Objectives: The overall objective of this study is to determine the comparative advantages and disadvantages between land clearing alternatives where 1) white spruce sawtimber is harvested prior to chaining; and 2) white spruce sawtimber is harvested after chaining, but before piling of residual trees and moss. This information will be useful in determining the timber and land characteristics under which timber salvage is economically feasible during the clearing process as well as the better harvesting and clearing alternative.

Funding Source:	Salary	Other	Total
U.S. Forest Service	\$4,443	\$2,528	\$6,971

Title: Fruit Improvement.

Acct. No.: 33334-150040, 36221-230691

National Goal: III, RPA:304

State Goal: 1 Termination: 9/30/82
SYs 0.3

Principal Investigator: D. Dinkel

Objectives: Fruit cultivars and strains from indigenous and exotic sources will be compared and tested for adaptation. Cultural practices will be devised for the day neutral type strawberries that are designed to develop annual production. Propagation techniques will be devised to increase desirable clones of hardy tree fruit and small fruit.

Funding Sources:	Salary	Other	Total
State	\$ -0-	\$ 1,154	\$ 1,154
Hatch	37,648	8,913	46,561
Total	\$37,648	\$10,067	\$47,715

Title: Vegetable Improvement for Interior Alaska.

Acct. No.: 33335-150040, 36228-230691

National Goal: III, RPA:304

State Goal: 1 Termination: 9/30/82
Sys 0.2

Principal Investigator: D. Dinkel

Objectives: This research is to evaluate and select new vegetable cultivars for Alaska; to devise cultural practices to improve yields of adapted crops and to extend the production potential to other crop; and to develop improved nutrition for adapted vegetable crops.

Funding Source:	Salary	Other	Total
State	\$11,558	\$ 2,890	\$14,448
Hatch	49,853	12,423	62,276
Total	\$61,411	\$15,313	\$76,724

Title: Improvement of Vegetable Production for South Central Alaska.

Acct. No.: 33396-150040

National Goal: III, RPA:304

State Goal: 1 Sys 0.7

Principal Investigator: D. Carling

Objectives: The purpose of this study is to determine optimum cultural practices and disease control for selected vegetable crops grown in the southcentral area of Alaska. Research is concentrated on potatoes and lettuce, as well as other leafy vegetables.

Funding Source:	Salary	Other	Total
State	\$67,375	\$27,846	\$95,221

Title: Waste Heat Utilization for Horticultural Crops.

Acct. No.: 33379-150040

National Goal: III, RPA:305

State Goal: 1

SYs 0.3

Principal Investigator: D. Dinkel

Objectives: This research is to investigate and devise practices for the use of reject heat and geothermal heat for vegetables, ornamental, and fruit production; and to determine the feasibility of commercial production using reject heat.

Funding Source:	Salary	Other	Total
State	\$50,570	\$14,670	\$65,240

Title: Small Grain Production in the Tanana Valley of Interior Alaska.

Acct. No.: 33300-150040, 36225-230691

National Goal: III, RPA:307

State Goal: 1

Termination: 9/30/84
SYs 0.3

Principal Investigator: F. Wooding

Objectives: This research is to develop sufficient technical knowledge, through a broad research program of variety testing and cultural practices, to make possible efficient production of barley, oats, and wheat in a subarctic environment; to evaluate triticale as a potential new grain crop; and to determine the quality of Alaska-produced grains.

Funding Sources:	Salary	Other	Total
State	\$49,611	\$13,002	\$62,613
Hatch	4,546	3,446	7,992
Total	\$54,157	\$16,448	\$70,605

Title: Introduction, Multiplication, Maintenance, Evaluation, and Cataloging of Plant Germ Plasm.

Acct. No.: 36235-230681 (W-6)

National Goal: III, RPA:307

State Goal: 1 Termination: 1985
SYS 0.1

Principal Investigator: F. Wooding

Objectives: This research is to evaluate germ plasm developed in other northern regions of the world for crops currently being grown in Alaska (wheat, oats, barley, and rapeseed) and to evaluate germ plasm for potential new crops for Alaska (flax, safflower, sunflower, buckwheat, millet, and grain amaranth).

Funding Source:	Salary	Other	Total
Hatch Regional	\$12,467	\$2,413	\$14,880

Title: Improved Barley, Oat and Wheat Varieties and Production Practices for Alaska.

Acct. No.: AR/SEA WRU 5618-20050, 36239-230661

National Goal: III, RPA:307

State Goal: 1 Termination: 1984
SYS 0.0

Principal Investigator: R. Taylor

Objectives: This project is to develop new barley, oat, and wheat varieties with improved adaptation to Alaska and techniques for maximizing efficient production of superior quality grain and forage.

Funding Source:	Salary	Other	Total
Federal	\$ 45,500	\$9,200	\$ 54,700
Coop Agreement	65,100	-0-	65,100
Total	\$110,600	\$9,200	\$119,800

Title: Improving Rapeseed Production.

Acct. No.: 33344-150040, 36222-230691

National Goal: III, RPA:307

State Goal: 1 Termination: 4/30/82
SYS 0.5

Principal Investigator: C. Knight

Objectives: This research is to evaluate rapeseed varieties and cultural practices for interior Alaska. Major emphasis is placed in the use of rapeseed in crop rotation and conservation tillage systems.

Funding Sources:	Salary	Other	Total
State	\$ 67	\$ 413	\$ 480
Hatch	25,430	7,509	32,939
Total	\$25,497	\$7,922	\$33,419

Title: Management Systems for Small Grain and Livestock Production in Interior Alaska.

Acct. No.: 33381-150040, 36246-230691

National Goal: III, RPA:309

State Goal: 1 Termination: 1/31/85
SYS 0.3

Principal Investigator: C. Lewis

Objectives: This research is to evaluate the effects of various management systems on costs of production of small grains, rapeseed, and livestock, and to prepare enterprise reports on economies of size, alternatives in land, labor, and machinery; and financial management returns.

Funding Sources:	Salary	Other	Total
State	\$ 773	\$ 566	\$ 1,339
Hatch	25,941	6,672	32,613
Total	\$26,714	\$7,238	\$33,952

Title: Crop Residue and Fertilizer Management.

Acct. No.: 33216-230870, 33236-230870

National Goal: III, RPA:309

State Goal: 1 Termination: 9/30/82
SYS 0.3

Principal Investigators: C. Lewis and R. Taylor

Objectives: A split-split plot design will be used to investigate the effect on barley yields of three types of straw treatments; 1) stubble and straw remaining; 2) stubble remaining, straw baled; 3) straw chopped and remaining; four tillage treatments: 1) no tillage, 2) maximum tillage, 3) minimum tillage with fall treatment, 4) minimum tillage with spring treatment; and two drill treatments: 1) hoe-type no-till drill, 2) double-disk opener no-till drill. Barley will be continuously cropped. Measurements will include soil moisture and temperatures, climatic variables, albiato and energy and cost requirements.

Funding Source:	Salary	Other	Total
U.S. Department of Agriculture	\$43,218	\$15,648	\$58,866

Title: Nutrition of High-Producing Dairy Cows.

Acct. No.: 36233-230681 (NC-115)

National Goal: III, RPA:311

State Goal: 1 Termination: 9/30/82
SYS 0.0

Principal Investigator: A. Brundage

Objectives: This research is to determine the utilization of shell-fish waste as an alternative protein source for lactating dairy cows and growing dairy steers and heifers.

Funding Source:	Salary	Other	Total
Hatch Regional	\$5,247	\$1,731	\$6,978

Title: Dairy Cattle Breeding and Management for Milk Production in Alaska.

Acct. No.: 33304-150040, 36219-230691

National Goal: III, RPA:311

State Goal: 1 Termination: 9/30/82
SYs 0.8

Principal Investigator: A. Brundage

Objective: This research is to evaluate the interrelationship of dairy cattle breeding with selection for milk production with selected elements for dairy cattle management in Alaska.

Funding Sources:	Salary	Other	Total
State	\$172,079	\$ 91,591	\$263,670
Hatch	64,307	20,839	85,146
Total	\$236,386	\$112,430	\$348,816

Title: Improving Dairy Cattle Through Breeding with Special Emphasis on Selection.

Acct. No.: 36230-230681 (NC-2)

National Goal: III, RPA:311

State Goal: 1 Termination: 9/30/82
SYs 0.0

Principal Investigator: A. Brundage

Objectives: This research is to evaluate the effectiveness and the limitation of single trait selection for milk yield among sires available in A.I. in designed experiments partially replicated at different locations, including measurement of correlated responses in traits of economic and theoretical interest.

Funding Source:	Salary	Other	Total
Hatch Regional	\$25,909	\$5,899	\$31,808

Title: Utilization of Alaskan Marine By-Products in Rations for Domestic Livestock.

Acct. No.: 34930-238680

National Goal: III, RPA:311

State Goal: 1 Termination: 10/31/83
SYS 0.1

Principal Investigator: F. Husby and A. Brundage

Objectives: This project is to determine and to define the nutritional value of Alaskan marine by-products, specifically meals produced from the wastes of bottomfish, as protein supplements for ruminant and nonruminant livestock, and to develop practical ration formulation with crab meal in lactating and growing dairy cattle rations. To continue the evaluation of chitin and crab waste meals as an energy source and as a protein supplement in beef cattle rations, and to determine practical swine ration guidelines for shellfish meal-finish meal combinations for the replacement of soybean meal in swine rations.

Funding Sources:	Salary	Other	Total
Sea-Grant	\$36,954	\$48,607	\$85,561

Title: Beefalo.

Acct. No.: 33394-150040

National Goal: III, RPA:311

State Goal: 1
SYS 0.0

Principal Investigator: A. Brundage

Objectives: This project is to increase the genetic contribution from beefalo to crossbred holstein x beefalo cattle and to assess the potential of these animals for crossbreeding with European beef breeds, such as Simmental.

Funding Source	State	Other	Total
State	\$5,761	\$3,298	\$9,059

Title: Utilization of High Protein Cereal Grains Produced in Alaska for Quality Pork Production.

Acct. No.: 33298-150040, 36227-230691

National Goal: III, RPA:311

State Goal: 1 Termination: 12/31/82
SYs 0.5

Principal Investigator: F. Husby

Objectives: This research is to determine the nutritional value and quality of high-protein cereal grains produced in northern latitudes for efficient pork production, and to evaluate marine by-products, plant protein or crystalline amino acids as the source of limiting amino acids to improve the protein quality of these cereal grains for growing and finishing pigs.

Funding Sources:	Salary	Other	Total
State	\$ -0-	\$ 6,631	\$ 6,631
Hatch	45,614	24,628	70,242
Total	\$45,614	\$31,259	\$76,873

Title: Red Meat Research.

Acct. No.: 33378-150040

National Goal: III, RPA:311

State Goal: 1
SYs 0.3

Principal Investigator: F. Husby

Objectives: This research is to determine the nutritional requirements of beef animals under Alaskan conditions for optimum production.

Funding Source:	Salary	Other	Total
State	\$32,878	\$9,402	\$42,280

Title: Forage Production and Utilization Systems as a Base
for Livestock Production.

Acct. No.: 36232-230681 (NC-114)

National Goal: III, RPA:313

State Goal: 1 Termination: 9/30/82
SYs 0.0

Principal Investigator: W. Mitchell and A. Brundage

Objectives: This research is to study production and utilization of annual forage (barley/peas, oats/peas, alfalfa, sweet clover, and winter rye) and perennial forages (Bering hairgrass, brome grass, and timothy); to study forage quality components as a function of time, species, and morphological parts of plants; and to utilize agronomic and animal science data from the project to evaluate economic alternatives within various livestock and crop combinations.

Funding Source:	Salary	Other	Total
Hatch Regional	\$10,253	\$2,522	\$12,775

Title: The Growth Performance of Yearling Steers Under Range and Feedlot Conditions on the Lower Kenai Peninsula.

Acct. No.: 33216-252250

National Goal: III, RPA:313

State Goal: 1 Termination: 3/31/82
SYs 0.0

Principal Investigator: A. Peischel

Objectives: Twenty-six head of cross-bred yearling steers were purchased from Dawson Creek, Canada and twenty-four purchased locally. Cattle were randomly allotted into two groups (13 Canadian and 12 local in each group) and put on native range pastures at Lookout Mountain. Cattle are weighed every two weeks and rate of gain recorded. Twelve animals (6 Canadian and 6 local) from one group are being used for an intake and digestibility study of native range forage consumption and digestibility. Cattle will be brought into the feedlot (middle of September) and fed a finishing ration. Cattle will be sold and slaughtered with carcass evaluation for yield/grade being the final comparison between the two groups of cattle.

Funding Source:	Salary	Other	Total
Alaska Commercial Fishing & Agricultural Bank	\$ -0-	\$7,768	\$7,768

Title: Applied Reindeer Research - Animal.

Acct. No.: 33398-150040

National Goal: III, RPA:313

State Goal: 1

SYS 1.1

Principal Investigator: J. Luick

Objectives: This funding is used to do applied research to support the reindeer industry in western Alaska. Specific objectives are to improve animal husbandry practices (including more effective animal nutrition and selective breeding techniques for stock improvement), and to improve management systems for reducing losses in reindeer production resulting from stress caused by herd size, handling techniques, predators, etc.

Funding Source:	Salary	Other	Total
State	\$135,935	\$62,240	\$198,175

Title: Alternate Energy Source.

Acct. No.: 33393-150040, 36210-230690

National Goal: III, RPA:315

State Goal: 1

Termination: 9/30/84
SYS 0.4

Principal Investigator: L. Allen

Objectives: This research is to investigate the availability of renewable energy sources and consider some applications to Alaska's high latitude agriculture; and to evaluate energy efficient structures as a means of reducing conventional energy use.

Funding Sources:	Salary	Other	Total
State	\$47,181	\$12,322	\$59,503
Hatch	612	159	771
Total	\$47,793	\$12,481	\$60,274

NATIONAL GOAL IV

Expand the demand for farm and forest products by developing new and improved products and processes and enhancing product quality.

<u>Funding Source</u>	<u>Salary</u>	<u>Other</u>	<u>Total</u>
	0	0	0

NATIONAL GOAL V: FUNDING SOURCES

Improve efficiency in the marketing system.

<u>Funding Source</u>	<u>Salary</u>	<u>Other</u>	<u>Salary Plus Other</u>	<u>Percentage of Total</u>
Hatch Regional	\$15,448	\$5,120	\$20,568	58.6
Grants & Contracts	11,719	2,838	14,557	41.4
TOTAL	\$27,167	\$7,958	\$35,125	100.0

NATIONAL GOAL V: RESEARCH PROJECTS

Title: Marketing and Delivery of Quality Cereals and Oilseeds in Domestic and Foreign Markets.

Acct. No.: 36229-230681 (NC-151)

National Goal: V, RPA:503

State Goal: 2 Termination: 9/30/83
SYS 0.2

Principal Investigator: C. Lewis

Objectives: Consider the effect of quality, particularly protein content in barley, on market price. Determine alternate transportation modes for moving grains and oilseeds to tidewater port in Alaska. Determine the effect of different methods of drying on length of possible storage time and grain and oilseed quality.

Funding Source:	Salary	Other	Total
Hatch Regional	\$15,448	\$5,120	\$20,568

Title: Alaska Crop and Livestock Statistics.

Acct. No.: 33236-230721

National Goal: V, RPA:511

State Goal: 3 Termination: 6/30/82

Principal Investigator: S. Restad

Objectives: The Alaska Crop and Livestock Statistics program provides agricultural statistics for national and state needs. It is operated by the USDA Crop and Livestock Statistical Reporting Service with the cooperation of the University of Alaska Agricultural Experiment Station and Cooperative Extension Service and the Alaska Division of Agriculture.

Funding Source:	Salary	Other	Total
Department of Natural Resources	\$11,719	\$2,838	\$14,557

NATIONAL GOAL VI

Expand export markets and assist developing nations.

Funding Sources	Salary	Other	Salary Plus Other	Percentage of Total
	-0-	-0-	-0-	0.0

NATIONAL GOAL VII

Protect consumer health and improve nutrition and well-being of the American people.

<u>Funding Source</u>	<u>Salary</u>	<u>Other</u>	<u>Salary Plus Other</u>	<u>Percentage of Total</u>
	-0-	-0-	-0-	0.0

NATIONAL GOAL VIII: FUNDING SOURCE

Assist rural Americans to improve their level of living.

<u>Funding Source</u>	<u>Salary</u>	<u>Other</u>	<u>Salary Plus Other</u>	<u>Percentage of Total</u>
Grants & Contracts	\$4,094	\$3,021	\$7,115	100.0

NATIONAL GOAL VIII: RESEARCH PROJECT

Title: Cost of Production and Processing Facilities for
Commercial Geese and Rabbits at Minto, Alaska.

Acct. No.: 33216-258630

National Goal: VIII, RPA:804

State Goal: 1 Termination: 2/27/82
SYs 0.0

Principal Investigator: C. Lewis (C. Warren)

Objectives: The objective of this project is to investigate the
feasibility of commercial production and processing of
geese and rabbits in Minto, Alaska. Projected numbers
of animals to be produced will be 5000 geese and 5000
rabbits. Target markets are Minto and near areas and
Fairbanks.

Funding Source:	Salary	Other	Total
Alaska Management and Planning	\$4,094	\$3,021	\$7,115

NATIONAL GOAL IX: FUNDING SOURCES

Promote community improvement including development of beauty, recreation, environment, economic opportunity, and public service.

Funding Source	Salary	Other	Salary Plus Other	Percentage of Total
State	\$48,711	\$11,121	\$59,832	8.5
Hatch Regional	1,341	2,644	3,985	0.5
McIntire-Stennis	14,980	3,146	18,126	2.6
Grants & Contracts	296,671	326,921	623,592	88.4
TOTAL	\$361,703	\$343,832	\$705,535	100.0

NATIONAL GOAL IX: RESEARCH PROJECTS

Title: Revegetation of Alaskan Coal Mine Spoils.

Acct. No.: 33236-243161

National Goal: IX, RPA:901

State Goals: 4 Termination: 2/28/83
SYs 0.3

Principal Investigator: W. Mitchell

Objectives: This research is to determine plant materials appropriate for use on coal mine spoils and disturbances; characterize soils and spoil materials and determine amendments necessary to establish and sustain growth; and study natural revegetation processes relevant to mine spoil revegetation.

Funding Source:	Salary	Other	Total
U.S. Department of Energy	\$37,768	\$31,556	\$69,324

Title: Soil and Water Conservation in Alaska (Phase I and II).

Acct. No.: 33216-230531

National Goal: IX, RPA:901

State Goal: 4 Termination: 9/30/83
SYs 0.7

Principal Investigator: J. Drew

Objectives: This research is to develop soil and management systems for effectively controlling soil and water erosion in interior Alaska. Major efforts are directed toward developing tillage systems and residue management systems for controlling soil and water erosion during the production of barley and rapeseed.

Funding Source:	Salary	Other	Total
U.S. Department of Agriculture	\$79,171	\$129,011	\$208,182

Title: Agricultural Pesticide Research.

Acct. No.: 33216-251710

National Goal: IX, RPA:901

State Goal: 4 Termination: 11/15/81
SYS 0.0

Principal Investigators: C. Knight and J. McBeath

Objectives: This research is for field studies and laboratory analyses to evaluate various herbicides and fungicides on Alaskan agricultural crops. Major emphasis is placed on the control of snowmold on winter wheat with fungicides.

Funding Source:	Salary	Other	Total
State of Alaska, Office of the Governor	-0-	\$6,548	\$6,548

Title: Relationships Among Vegetation, Ground Ice, and Disturbances on Northfacing Slopes Near Fairbanks.

Acct. No.: 36218-230701

National Goal: IX, RPA:901

State Goal: 4 Termination: 9/30/85
SYS 0.1

Principal Investigator: B. Neiland

Objectives: Depths to ground ice in various vegetation types on three N-facing slopes were measured three times during the growing season; this is being repeated in summer 1982. Depth of the moss or grass mulch mat was measured to compared with similar measurements made in 1971, 72 and 73.

Funding Source:	Salary	Other	Total
McIntire-Stennis	\$7,817	\$1,642	\$9,459

Title: Investigations on Revegetation and Correlated Physical and Biological Parameters on Denuded Lands in the Vicinity of Fairbanks, Alaska.

Acct. No.: 36216-230701

National Goal: IX, RPA:901

State Goal: 4 Termination: 9/30/85
SYS 0.1

Principal Investigator: B. Neiland

Objectives: Experimental plots to detect the effects of natural revegetation of various mulch, fertilizer, and soil-addition treatments were re-sampled. These data and those from the five years of plot sampling of permanent plots in the various sites were reduced for analysis. Plots of seedlings, cuttings and seeds of alder and soapberry were established.

Funding Source:	Salary	Other	Total
McIntire-Stennis	\$7,163	\$1,504	\$8,667

Title: Outdoor Recreation and the Public Interest: Evaluation of Benefits and Costs in Federal and State Resources Planning.

Acct. No.: 33353-150040, 36234-230681 (W-133)

National Goal: IX, RPA:902

State Goal: 4 Termination: 9/30/85
SYS 0.7

Principal Investigators: W. Workman and A. Jubenville

Objectives: The overall objective is to provide an evaluation of federal outdoor recreation benefit-cost methodologies - both conceptually and empirically. To accomplish this result there are two specific objectives. Objective 1: To apply empirically Water Resources Council (WRC) recreation valuation methods and procedures [currently: travel cost method (TCM); contingent valuation method (CVM); and unit day value (UDV)] to selected land and water projects. Objective 2: To compare and evaluate the alternative WRC recreation valuation methods and procedures for western resource situations. When warranted, appropriate improvements will be suggested for application in western settings.

Funding Source:	Salary	Other	Total
State	\$42,983	\$ 9,257	\$52,240
Hatch Regional	1,341	2,644	3,985
Total	\$44,324	\$11,901	\$56,225

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Title: Recreation Plan for the Susitna Hydroelectric Project.

Acct. No.: 33355-257470

National Goal: IX, RPA:902

State Goal: 4 Termination: 4/30/82
SYs 0.0

Principal Investigator: A. Jubenville

Objectives: The objectives of the project are threefold: 1) assess resource capability for recreation opportunities; 2) determine public choice of recreational development schemes within the resource capability; and 3) develop a master plan incorporating the preferred choice of development schemes.

Funding Source:	Salary	Other	Total
Terrestrial	\$25,747	\$20,733	\$46,480
Environmental			
Specialists			

Title: Land-Use Analysis of the Susitna Hydroelectric Project.

Acct. No.: 33354-257470

National Goal: IX, RPA:903

State Goal: 3 Termination: 4/30/82
SYs 0.0

Principal Investigator: A. Jubenville

Objectives: The intent of the project is first to describe present land use using the oral history technique to reconstruct present use and the historical forces that created those patterns. Second, the impact of the proposed hydroelectric project on the present land-use to be evaluated.

Funding Source:	Salary	Other	Total
Terrestrial	\$11,957	\$10,906	\$22,863
Environmental			
Specialist			

Title: Vegetation Inventory and Habitat Evaluation.

Acct. No.: 33236-257511

National Goal: IX, RPA:903

State Goal: 3 Termination: 6/30/83
SYS 0.8

Principal Investigator: J. McKendrick

Objectives: This project is to provide vegetation base maps for the impact analyses of the proposed Susitna hydroelectric project, and identify ecological factors controlling secondary plant succession relative to moose habitats.

Funding Source:	Salary	Other	Total
Terrestrial	\$131,755	\$127,518	\$259,273
Environmental			
Specialists			

Title: Tree Species for Urban Planting in Interior Alaska.

Acct. No.: 33216-230760

National Goal: IX, RPA:905

State Goal: 4 Termination: 5/1/82
SYS 0.0

Principal Investigator: B. Neiland

Objectives: This research is to analyze data from T-field outplanting areas on the Experiment Farm at Fairbanks, and take additional measurements as required; catalogue species that have been successfully used by residents in the Fairbanks area; and develop a list of species that grow north of 60° north latitude in Canada, Europe and Russia. Success of the T-field outplantings has been evaluated during summer 1982; search has been made in Fairbanks areas for species used as ornamentals and information gathered about those found.

Funding Source:	Salary	Other	Total
U.S. Forest Service	\$7,422	-0-	\$7,422

Title: Ornamental Plant Improvement for Alaska.

Acct. No.: 33333-150040

National Goal: IX, RPA:906

State Goal: 4

SYs 0.0

Principal Investigator: D. Dinkel

Objectives: This research is to improve the quality of living in Alaska through the improvement and adaptation of plants for ornamental purpose in the north; to develop propagation techniques for indigenous and hardy exotic ornamental plants, so that a local nursery industry can develop; to develop background knowledge and information to support the bedding plant and cut flower industries; and to evaluate the potential for production of poinsettia for the local market.

Funding Source:	Salary	Other	Total
State	\$5,728	\$1,864	\$7,592

Title: Tissue Culture of Amelanchier and Salix.

Acct. No.: 33216-252800

National Goal: IX, RPA:906

State Goal: 4

Termination: 5/1/82
SYs 0.0

Principal Investigator: D. Dinkel

Objectives: This project is to conduct research and prepare a laboratory procedures manual on the methods of tissue culturing plant species in the genera Amelanchier and Salix.

Funding Source:	Salary	Other	Total
Department of Natural Resources	\$2,851	\$649	\$3,500

ADMINISTRATIVE PROJECTS

SUMMARY OF ADMINISTRATIVE PROJECT EXPENDITURES
BY SOURCE AND AMOUNT, FY 1982

<u>Funding Source</u>	<u>Salary</u>	<u>Other</u>	<u>Salary Plus Other</u>	<u>Percent of Total</u>
State	\$319,287	\$167,193	\$486,480	60.1
Hatch	62,647	27,655	90,302	11.2
Hatch Regional	-0-	10,732	10,732	1.3
Grants & Contracts	122,223	31,384	153,607	19.0
Federal	41,680	9,520	51,200	6.3
Coop Agreement	16,800	-0-	16,800	2.1
TOTAL	\$562,637	\$246,484	\$809,121	100.0

Title:	Director's Office.		
Acct. No.:	33346-150040		
Administrative Personnel:	J. Drew, S. Restad, C. Hartman		
Administrative Function:	This account is for the overall administration of the Experiment Station.		
Funding Source:	Salary	Other	Total
State	\$216,215	\$74,421	\$290,636

Title:	Regional Research Coordination.		
Acct. No.:	36236-230681, (W-106)		
Administrative Personnel:	J. Drew		
Administrative Function:	This account is for the planning and coordination of regional agricultural research and for the accounting and disbursement of travel funds for regional research.		
Funding Source:	Salary	Other	Total
Hatch Regional	-0-	\$10,732	\$10,732

Title:	Palmer Administration.		
Acct. No.:	33232-150040, 36224-230691		
Administrative Personnel:	S. Restad		
Administrative Function:	This account is for Administrative support for research at the Palmer Research Center.		
Funding Sources:	Salary	Other	Total
State	\$ 39,014	\$24,129	\$ 63,143
Hatch	62,647	27,655	90,302
Total	\$101,661	\$51,784	\$153,445

Title: Palmer Library Account.

Acct. No.: 33239-150040

Administrative Personnel: S. Restad

Administrative Function: This fund provides library materials at Experiment Station Research Centers. Because of the number of staff members located away from the University library, a number of books and journals of special interest are purchased and maintained at the Experiment Station facilities.

Funding Source:	Salary	Other	Total
State	\$6,842	\$11,889	\$18,731

Title: CETA Title IV, Youth Employment and Training Program.

Acct. No.: 33236-248860 Termination: 9/30/81

Principal Investigator: S. Restad

Objectives: This program provides for two out-of-school YETP positions for training opportunities. Both are lab/helper aids. Training opportunities offered are instruction on operating lab analysis equipment, repair of small machinery, use of hand tools and painting techniques.

Funding Source:	Salary	Other	Total
CETA	\$5,671	\$445	\$6,116

Title: CETA Title II-D Public Service Equipment.

Acct. No.: 33236-252100 Termination: 9/30/81

Principal Investigator: S. Restad

Objectives: This program provides three positions with the University of Alaska; one barn person, one lab helper and one clerk typist. Barn person - learn to work independently, learn livestock care, learn to be accurate with research data and get along with co-workers. Lab helper - learn to independently perform scheduled duties, learn to be accurate in all details of laboratory and learn to use various types of lab equipment. Clerk typist - increase typing speed by 20 wpm, learn to work independently and learn to use other office machines.

Funding Source:	Salary	Other	Total
CETA	\$8,776	\$686	\$9,462

Title: Title V Senior Community Service Employment Program.

Acct. No.: 33236-251821

Administrative Personnel: S. Restad Termination: 9/30/81

Administrative Function: The Title V program provides retraining and part-time employment for people over 55. The participants in the program have been steady, sincere workers that appreciate the opportunity to participate. The program has provided some excellent research assistance.

Funding Source:	Salary	Other	Total
Department of Health & Social Services	\$57,633	\$6,345	\$63,978

Title: Publications Account.

Acct. No.: 33215-150040

Administrative Personnel: M. Murray

Administrative Function: This account contains funds for the production and distribution of such publications as Agroborealis and other Experiment Station publications. The cost of printing publications is charged whenever possible to the research projects on which they are based.

Funding Source:	Salary	Other	Total
State	\$57,216	\$56,754	\$113,970

Title: Federal Program Administration.

Acct. No.: WRU 5618-02010

Administrative Personnel: R. Taylor (B. Leckwold)

Administrative Function: This account provides administrative management, and business opportunities for the Federal employees within the AR/USDA group in Alaska. Includes preparation of the budget and accountability of all funds. Maintains records on operations cost, utilization and safety inspections of motor vehicles. Advises federal employees on personnel matters and keeps all employees informed on rules and regulations, and procedures which affect their status, both Federal and University regulations.

Funding Source:	Salary	Other	Total
Federal	\$41,680	\$9,520	\$51,200
Coop Agreement	16,800	-0-	16,800
Total	\$58,480	\$9,520	\$68,000

Title:	Personal Services Assignment Agreement.		
Acct. No.:	33292-233221	Termination: 9/30/82	
		SYs 1.0	
Principal Investigator:	G. Laursen		
Objectives:	The Principal Investigator is working with the Biological Sciences Division, Office of Naval Research, Washington, D.C. as an Intergovernmental Personnel Act participant to develop a cold weather biophysical/physiology/biochemistry program.		
Funding Source:	Salary	Other	Total
Department of the Navy	\$50,143	\$23,908	\$74,051

MAINTENANCE PROJECTS

SUMMARY OF MAINTENANCE PROJECT EXPENDITURES
BY SOURCE AND AMOUNT, FY 1982

<u>Funding Source</u>	<u>Salary</u>	<u>Other</u>	<u>Salary Plus Other</u>	<u>Percentage of Total</u>
State	\$316,419	\$351,257	\$667,676	73.2
Grants & Contracts	149,372	95,332	244,704	26.8
TOTAL	\$465,791	\$446,589	\$912,380	100.0

Title: College Plant, Fairbanks.

Acct. No.: 33214-150040

Administrative Personnel: J. Drew (M. Stark)

Administrative Function: This fund is for utilities and maintenance at the Fairbanks AES Experiment Farm. Most maintenance of facilities is done by farm staff, as well as improvements as time permits. The maintenance function includes a support facility capable of vehicle and machinery maintenance and repair. This repair capability is essential to the operation of the farm because of the extent and diversity of equipment which must be kept in operation.

Funding Source:

	Salary	Other	Total
State	\$44,856	\$18,331	\$63,187

Title: College Research Services, Fairbanks.

Acct. No.: 33212-150040

Administrative Personnel: J. Drew (M. Stark)

Administrative Function: This fund is for research support for research of the Fairbanks AES Experiment Farm. Significant effort is devoted to the production of feed for the AES animal program. A part of the farming for sustained feed supply is the ongoing program of clearing new ground, cleaning debris from clearing, fallowing areas and continuing to improve field drainage. Construction projects and fencing projects are also undertaken.

Funding Source:

	Salary	Other	Total
State	\$39,014	\$122,244	\$161,258

Title: Palmer Plant.

Acct. No.: 33234-150040

Administrative Personnel: S. Restad

Administrative Function: This fund is for the administration of the Palmer Research Center physical plant. As an off-campus facility, administration and maintenance of the plant is handled separately from on-campus facilities.

Funding Source:	Salary	Other	Total
State	\$97,709	\$92,829	\$190,538

Title: Matanuska Plant.

Acct. No.: 33231-150040

Administrative Personnel: S. Restad (F. Perkins)

Administrative Function: The Matanuska Farm is an off-campus facility of the Experiment Station which is maintained by the local staff.

Funding Source:	Salary	Other	Total
State	\$83,188	\$93,942	\$177,130

Title: Animal Husbandry Research Support, Matanuska Farm.

Acct. No.: 33240-150040

Administrative Personnel: S. Restad (F. Perkins)

Administrative Function: This fund is for farm operations in support of maintenance of the dairy herd at Matanuska.

Funding Source:	Salary	Other	Total
State	\$51,652	\$23,911	\$75,563

Title: Homer Research Center - Operational Funding.

Acct. No.: 33256-252750

Administrative Personnel: A. Peischel Termination: 6/30/82

Administrative Function: This funding is used for the administration of the Homer Research Center physical plant. As an off-campus facility, administration and maintenance of the plant is handled separately from on-campus facilities.

Funding Source:

	Salary	Other	Total
State of Alaska, Office of the Governor	\$147,036	\$77,035	\$224,071

Title: Homer Research Center - Upgrade and Equipment.

Acct. No.: 33256-252770

Administrative Personnel: A. Peischel Termination: 12/31/82

Administrative Function: This funding is being used to improve the Homer Research Center facilities, to clear land near the center for silage production and pastures, and to purchase equipment needed to conduct red meat research at Homer, Alaska.

Funding Source:

	State	Other	Total
State of Alaska, Office of the Governor	\$2,336	\$18,297	\$20,633

PUBLIC SERVICE PROJECTS

SUMMARY OF PUBLIC SERVICE PROJECT EXPENDITURES
BY SOURCE AND AMOUNT, FY 1982

<u>Funding Source</u>	<u>Salary</u>	<u>Other</u>	<u>Salary Plus Other</u>	<u>Percentage of Total</u>
State	\$117,880	\$41,081	\$138,961	65.2
Grants & Contracts	59,191	25,497	84,688	34.8
TOTAL	\$177,071	\$66,578	\$243,649	100.0

Title: Crop Improvement Association.

Acct. No.: 33217-150040

Principal Investigator: C. Knight

Objectives: This work is to increase and distribute public varieties and assist in seed certification for Alaska.

Funding Source:	Salary	Other	Total
State	\$9,425	\$1,955	\$11,380

Title: Matanuska Valley Breeders - Dairy Herd Improvement.

Acct. No.: 33244-150040

Principal Investigator: A. Brundage

Objectives: This work is to encourage artificial insemination for the dairy industry, and dairy herd improvement.

Funding Source:	Salary	Other	Total
State	\$34,724	\$10,454	\$45,178

Title: Soil and Plant Analysis - Laboratory Services.

Acct. No.: 33247-150040

Principal Investigator: G. Mitchell

Objectives: This work provides soil and tissue analysis for various research projects, and contract analysis and soil testing of farmers' samples for Cooperative Extension Service.

Funding Source:	Salary	Other	Total
State	\$73,312	\$28,639	\$101,951

Title: Engineering Problems.

Acct. No.: 33243-150040

Principal Investigator: L. Allen

Objectives: This work provides information on special, peculiar, or unique engineering problems and situations encountered in Alaska's agriculture.

Funding Source:	Salary	Other	Total
State	\$419	\$33	\$452

Title: Rural Forestry Assistance.

Acct. No.: 33216-230850

Principal Investigator: B. Neiland Termination: 5/10/84
SYs 0.0

Objectives: This project is to initiate a forestry extension program in Alaska in cooperation with the Cooperative Extension Service, the State of Alaska and the U.S. Forest Service.

Funding Source:	Salary	Other	Total
U.S. Forest Service	\$11,818	\$8,185	\$20,003

Title: Assignment Agreement - Ecological Reserves.

Acct. No.: 33216-230830

Principal Investigator: G. Juday Termination: 9/30/82

Objectives: This project is to identify sites in Alaska important for all types of field research and to document the scientific values of high priority areas; to formally establish scientific research and educational areas which are useful as either manipulative experimental areas or as undisturbed baseline study areas; and to develop a system for efficiently sharing research results and site descriptive information from these area.

Funding Source:	Salary	Other	Total
U.S. Forest Service	\$39,997	\$8,196	\$48,193

Title: Potential Effects of CO₂ Induced Climatic Change in Alaska.

Acct. No.: 33216-252760

Principal Investigator: J. McBeath

Termination: 6/30/82
SYS 0.0

Objectives: This project is to 1) organize a conference in which scientists and humanists will examine the latest information about CO₂ induced climatic changes and their potential effects on Alaskan environment such as on agricultural development, ecosystem, marine biota, soil physics (permafrost), etc.; 2) disseminate the information.

Funding Source:	Salary	Other	Total
Alaska Humanities Forum	\$2,940	\$947	\$3,887

Title: Appropriate Technology Small Grants Program.

Acct. No.: 33216-243280 (Federal)

Principal Investigator: B. Neiland (S. Yarian)

Termination: 12/31/81
SYS 0.0

Objectives: This project is to create a multi-media Energy Curriculum Library at the North Pole Junior-Senior High School. The Library consists of 3 sections: (1) the Curriculum Library containing approximately 100 books and filmstrips on general energy topics and related curriculum activities (2) a 20 minute videotape of a local Appropriate Technology energy project, and (3) the development of "Energy packets" which combine the resources of the library with those of the community to form mailable energy education units for teachers in Alaska.

Funding Source:	Salary	Other	Total
State of Alaska, Department of Commerce & Economic Development, & U.S. Department of Energy	\$2,673	\$2,087	\$4,760

Title: Work Sessions for Alaska Agricultural Action Council Projects.

Acct. No.: 33216-254050

Termination: 6/30/82
SYs 0.0

Principal Investigator: J. Drew

Objectives: This account is used for the travel of Experiment Station staff members to obtain data and attend planning sessions for agricultural development projects in Alaska.

Funding Source:	Salary	Other	Total
State of Alaska, Office of the Governor	-0-	\$4,783	\$4,783

Title: A Review of Measures of Performance for State of Alaska Loan and Investment Programs.

Acct. No.: 33216-258510

Principal Investigator: W. Thomas

Termination: 1/31/82
SYs 0.0

Objective: This project is to provide the Alaska Legislature with a methodology for evaluation and design of state lending investment programs.

Funding Source:	Salary	Other	Total
Northern Development Association	\$1,763	\$1,299	\$3,062